

# **Meeting on Issues Relating to the California Phase 3 Reformulated Gasoline Regulations**

**September 14 , 2000**

**California Environmental Protection Agency**

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**Air Resources Board**

# Agenda

- ✦ Introduction
- ✦ Overview of issues and progress
- ✦ Presentation from others
- ✦ Schedule next meeting

# Issues

- ✦ Correction to the CaRFG3 Regulations  
Follow-Up Amendments, September 11, 2000  
Preliminary Draft
- ✦ CARBOB regulation Transitions
  - Transitions between different blends
- ✦ Denatured ethanol specifications
- ✦ Small refiners
- ✦ Commingling
- ✦ Permeation
- ✦ Driveability index
- ✦ Sulfur in gasoline

# **Correction to the CaRFG3 Regulations**

## **Follow-Up Amendments**

### **September 11, 2000 Preliminary Draft**

For the denatured ethanol:

Sulfur Content	10 ppm
Benzene Content	0.05 %
Olefin Content	0.5 %
aromatic HC Content	1.7%

In the denaturant:

Sulfur Content	No Limit
Benzene Content	1.1 %
Olefin Content	10.0 %
Aromatic HC Content	35 %

# **Correction to the CaRFG3 Regulations**

## **Follow-Up Amendments**

### **September 11, 2000 Preliminary Draft**

- ♦ Characteristic of denatured ethanol used in determining whether a final blend of CARBOB complies with the standards of California gasoline

Denatured ethanol properties:

Sulfur Content	5 - 10 parts per million
Benzene Content	0 - 0.05 volume percent
Olefin Content	0 - 0.5 volume percent
Aromatic HC Content	0 - 1.70 volume percent

# **Correction to the CARFG3 Regulations**

## **Follow-Up Amendments**

### **September 11, 2000 Preliminary Draft**

#### ♦ **Test Method for the Determination of the Reid Vapor Pressure Equivalent Using an Automated Vapor Pressure Test Instrument**

The repeatability values for specific automated vapor pressure test instruments are:

Grabner instruments,

Model: CCA-VP (laboratory grabner)      0.084 psi

Grabner instruments,

Model: CCA-VPS (portable grabner)      0.084 psi

# **Proposed Specifications for Denatured Ethanol and Denaturants**

	<b><u>Specifications for Denatured Ethanol</u></b>	<b><u>Specifications for Denaturants</u></b>
<b>Sulfur, ppm</b>	<b>10</b>	<b>--</b>
<b>Benzene, vol.%</b>	<b>0.05</b>	<b>1.1</b>
<b>Olefin, vol.%</b>	<b>0.50</b>	<b>10</b>
<b>Aromatics, vol.%</b>	<b>1.7</b>	<b>35</b>
<b>Others</b>	<b>ASTM D 4806</b>	<b>--</b>

# Denatured Ethanol Specifications

- ✦ **Sulfur Limit would be enforced by testing the denatured ethanol.**
- ✦ **The limits for benzene, olefins, and aromatics contents of denaturant are limited to the CaRFG3 Cap limits.**
- ✦ **Benzene, olefins, and aromatics limits would be enforced by determining the concentrations of these compounds in the denaturant and calculating the concentrations corresponding to the amount of denaturant added.**
- ✦ **Requires product transfer documents with description of ethanol and denaturant.**

# **Sulfur Levels in Denatured Ethanol for Different Addition Levels of Denaturant**

<b>Undenatured <u>Ethanol</u></b>	<b><u>Denatured Ethanol</u><sup>1</sup></b>	
	<b><u>2.0% Denaturant</u><sup>2</sup></b>	<b><u>4.8% Denaturant</u><sup>2</sup></b>
<b>8</b>	<b>9</b>	<b>10</b>
<b>9</b>	<b>10</b>	<b>11</b>
<b>10</b>	<b>11</b>	<b>12</b>
<b>11</b>	<b>12</b>	<b>13</b>
<b>12</b>	<b>13</b>	<b>14</b>
<b>13</b>	<b>14</b>	<b>15</b>

**1 Assumes that the denaturant has a sulfur level of 60 ppm.**

**2 Federal regulations and ASTM standards require a minimum denaturant concentration of 2% and limits the maximum concentration at 4.8%.**

# CARBOB

- ✦ Amendments to CaRFG regulations to assure the practical blending of ethanol downstream of refinery and to facilitate the importation of gasoline.
- ✦ CaRBOB model for certification of ethanol blends prior to the addition of ethanol
- ✦ Storage tanks transition
- ✦ Proposal to the Board by November 2000

# Small Refiners

- ◆ Amendments to the ARB's diesel fuel regulations to incorporate a mechanism for small refiners to fully mitigate any increased emissions associated with CaRFG3 small refiner provisions
- ◆ Proposal to the Board by November 2000

# Commingling Effects

- ◆ Investigate effects from commingling EtOH blends and non-oxygenated gasoline
- ◆ Recommendations to Board by December 2001

# Permeation Emissions

- ◆ Contract in place with Harold Haskew & Associates
- ◆ Update the Board in November 2000 on the potential increase in hydrocarbon emissions from material permeability with the use of ethanol in gasoline
- ◆ Report to the Board on the results of permeability testing by December 2001

# Predictive Model and EMFAC 200

- ♦ EMFAC 2000 inventories approved (pending resolution of a couple of outstanding issues) by the ARB in May 2000
  - Resolution of the outstanding issues were not be in time to meet the deadline for the adoption of the CaRFG3 Regulations

# Oxygen Waiver

- ◆ Continue to pursue the U. S. EPA oxygen waiver
  - Continue to support request to U. S. EPA to waive the application of the federal RFG year-round 2.0 wt.% minimum oxygen requirement for federal RFG areas

# Driveability Index

- ◆ Transmitted to the U. S. EPA the board's recommendation to adopt a nationwide DI standard to assure the adequate emissions performance of existing and advanced technology motor vehicles
- ◆ To evaluate driveability characteristics of in-use CaRFG3 to determine if adequate
- ◆ Report to the Board by 2004

# Sulfur Content

- ♦ Evaluate CaRFG3 sulfur levels
- ♦ Complete evaluation with CEC on impacts of near zero sulfur levels in gasoline (including impacts on supply and cost of production)
- ♦ To be completed in 2004

## Other Issues

- ◆ Work with local air quality management districts and local communities to address potential impacts from an increase use of cargo tank trucks to transport ethanol
- ◆ Provide the Board with update every 6 months on the of the implementation of the directives

# Other Meeting Items

- ✦ Presentation from others
- ✦ Schedule next meeting